## **CLAIMS**

An apparatus for a radio communication system (100) comprising:
 means for receiving an access message transmitted from a subscriber
 unit (101) to a base station (103);

means (111) for determining an interference characteristic associated with the subscriber unit; and

means (113) for determining a resource requirement for achieving a desired signal to interference ratio in response to the interference

10 characteristic.

- An apparatus as claimed in claim 1 wherein the means for determining
  the interference characteristic is operable to determine a distance
  characteristic indicative of a distance between the subscriber unit and the base
   station and to determine the interference characteristic in response to the
  distance characteristic.
- 3. An apparatus as claimed in claim 2 wherein the means for determining the interference characteristic is operable to determine the distance
  20 characteristic in response to a propagation delay associated with a communication between the subscriber unit and the base station.
- 4. An apparatus as claimed in claim 2 or 3 wherein the distance characteristic comprises a ratio between an estimated distance between the
  25 subscriber unit and the base station and a cell radius associated with the base station.
- 5. An apparatus as claimed in any of the previous claims 2 to 4 wherein the means for determining the interference characteristic is operable to
   30 determine the interference characteristic in response to a predetermined

29 variation of the interference characteristic as a function of the distance characteristic. 6. An apparatus as claimed in claim 5 wherein the predetermined function 5 is a substantially linear function. 7. An apparatus as claimed in any of the previous claims 2 to 6 wherein the means for determining the interference characteristic is operable to determine the interference characteristic in response to empirical data 10 indicating an association between the interference characteristic and the distance characteristic 8. An apparatus as claimed in any of the previous claims 2 to 7 wherein the means for determining the interference characteristic is operable to 15 determine the interference characteristic in response to simulation data indicating an association between the interference characteristic and the

An apparatus as claimed in any previous claim wherein the apparatus

subscriber unit and the means for determining the interference characteristic

An apparatus as claimed in claim 9 wherein the signal measurement

An apparatus as claimed in claim 10 wherein the means for determining

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data comprises a measured signal to interference ratio of a signal of the base

30 the interference characteristic is operable to determine the interference

is operable to determine the interference characteristic in response to the

20 further comprises means for receiving signal measurement data from the

distance characteristic

signal measurement data.

9.

25 10.

station.

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determining the interference characteristic is operable to compensate for an inter-cell interference component of the measured signal to interference ratio. 13. An apparatus as claimed in any of the previous claims 9 to 12 wherein 10 the signal measurement data comprises measured signal to interference ratios

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- associated with the base station and a plurality of neighbouring base stations and the means for determining the interference characteristic is operable to determine the interference characteristic comprising an inter-cell interference measure in response to the measured signal to interference ratios associated 15 with the base station and the plurality of neighbouring base stations.
- 14. An apparatus as claimed in any previous claim wherein the means for determining the interference characteristic is operable to determine an interference bias associated with the subscriber unit and to determine the 20 interference characteristic in response to the bias.
  - 15. An apparatus as claimed in any previous claim wherein the interference characteristic comprises an inter-cell interference factor.
- 25 16. An apparatus as claimed in claim 15 wherein the means for determining the interference characteristic is operable to determine the inter-cell interference factor in response to a path loss estimate of a radio communication link between the subscriber unit and the base station and path loss estimates of radio communication links between the subscriber unit and a 30 plurality of neighbour base stations.

- 17. An apparatus as claimed in any previous claim wherein the interference characteristic comprises an intra-cell interference factor.
- 18. An apparatus as claimed in claim 17 wherein the intra-cell interference factor comprises an intra-cell orthogonality factor.
  - 19. An apparatus as claimed in any previous claim wherein the means for determining the resource requirement is further operable to determine the resource requirement in response to a noise level.

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- 20. An apparatus as claimed in any previous claim wherein the resource requirement is a power requirement.
- 21. An apparatus as claimed in claim 20 wherein the resource requirement15 is a relative power requirement.
- 22. An apparatus as claimed in any previous claim further comprising means for determining if the resource requirement is less than an available resource of the base station and for admitting access of the subscriber unit only if the resource requirement is less than the available resource.
  - 23. An apparatus as claimed in any previous claim wherein the resource requirement is associated with a downlink resource of the base station.
- 25 24. An apparatus as claimed in any previous claim wherein the radio communication system is a CDMA communication system.
  - 25. A method of radio access management for a radio communication system, the method comprising the steps of:
- receiving an access message from a subscriber unit (101) at a base station (103);

determining (111) an interference characteristic associated with the subscriber unit; and

determining (113) a resource requirement for achieving a desired signal to interference ratio in response to the interference characteristic.

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